

GENERAL PARALYSIS OF THE  
INSANE

by

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*I hereby certify that this Thesis is entirely  
of my own composition.*

*J. Batty Tuke jr.*

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I hereby certify that John Battley Esq.  
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## GENERAL PARALYSIS OF THE INSANE .

Some writers, more especially Dr Savage, seem to regard general paralysis as only a clinical term comprising a number of cases, which may, or may not, shew mental symptoms; but are characterised by a motor paralysis differing from the ordinary palsies.

Duchenne holds, that the mental symptoms of general paralysis are only secondary, or superimposed, and that the motor symptoms are the all important ones; other French writers (Boismont) hold that there are two great forms of general paralysis, one with, and the other without mental symptoms. Clouston and others hold that general paralysis cannot exist without mental symptoms.

The question comes to be, is general paralysis a pathological entity, or is it merely a symptom of several diseased conditions of the brain? There is no one pathognomonic symptom; grandiose delusions, fibrillar twitchings of the muscles of the tongue and face, paresis of the muscles of locomotion; and the very pathological appearances of adhesion of membranes, proliferation of the nuclei of the neuroglia, vascular changes, etc., are all found, in a more or less marked degree, in other mental and bodily diseases.

But there is a certain well-marked series of cases, first recognised by Calmiel in 1826, in which, with certain modifications, a distinct train of symptoms, both mental and physical are well marked; and which, on P.M. examination, shew such a uniform pathology, as fully to entitle them to be considered <sup>the subjects of</sup> a distinct disease.

In classifying general paralysis, I will divide it primarily into two main sections.

1st. True, or Idiopathic General Paralysis.

2nd. Pseudo, or Simulated General Paralysis.

The first is certainly a pathological entity, characterised by a distinct train of symptoms, both mental and physical, and running a uniformly fatal course in a more or less definite period of time.

The second is largely made up of acute or chronic alcoholic and syphilitic cases, with occasional rare cases of other diseases, physical or mental, giving rise to symptoms simulating general paralysis. More especially in the alcoholic and syphilitic cases, a train of symptoms is produced which, at first, it is extremely difficult to diagnose from true general paralysis; and it is often only as the disease progresses, or the effect of treatment becomes evident,



that a differential diagnosis can be made. Of the cases that have come under my observation, 80 per cent. belonged to the 1st, and 20 per cent. to the 2nd class.

True, or Idiopathic General Paralysis.

This condition is essentially a diffuse subinflammatory sclerosis of the connective tissue of the cerebral hemispheres, following on inflammatory changes in the viscer~~al~~ pia and hyaline sheaths; affecting principally the superior and lateral aspects of the parietal lobes, and the frontal convolutions; occasionally implicating the superior marginal convolutions, and, in some rare cases, the base of the brain.

The focus of the disease appears to be ~~the~~ the motor tract, but this is dependent on anatomical arrangements, in as much, as over that region the veins of the pia mater debouch into the great longitudinal sinus, at an angle contrary to the antero-posterior flow of the blood; and consequently from the damming up of the blood in the vessels of the pia, the effects of congestion are necessarily most readily marked. The appearance of fine milky lines along the course of the veins in this region is observable, not

only in all forms of congestive insanity, but is not infrequently noticeable in the <sup>Sene</sup>~~same~~ brain.

It is characterised clinically by a series of physical symptoms, consisting in a loss of co-ordination, or paresis, or both combined, of certain groups of muscles: and by mental phenomena consisting either in an undue facility or general optimism, amounting frequently to ambitious delirium; occasionally melancholia, or only a mild ~~degenerative~~ dementia.

According, as one or other of these mental symptoms predominate, Idiopathic general paralysis can be divided for clinical purposes into the following groups or types;

(a) General Paralysis with exalted delusion.

(b) General Paralysis with melancholic or hypochondriacal delusion.

(c) General Paralysis without delusion, manifested only by a greater or less degree of dementia.

The causation of general paralysis is very obscure. Different observers have tabulated various causes as either pre-disposing, exciting, or even as sole elements in its production.

For instance, Neuman and Cavalier state sexual excess to be the most common and almost exclusive cause. Maudsley, inclines to the opinion that sexual excess, as carried on by married couples for a number of years, is the most common factor: and other writers, as Guisland, Shepphard and Sankey give to sexual excess an important place in the production of general paralysis.

Against this may be urged (1st) that it is almost impossible to obtain correct information on this subject: (2nd) that general paralysis does not occur at the time of life, during which sexual excess is most common, and (3rd) that sexual excess is very frequently an early symptom of general paralysis, and that the symptom may be mistaken for the cause.

Meikle gives alcoholic excess as the most fertile cause (23.5 per cent), and the majority of writers agree in considering this to be at least a predisposing cause. It must, however, be remembered that excessive drinking is also frequently an early symptom, and that alcoholic excess produces symptoms very closely simulating the condition, although in many ways differing from it.

Syphilis is frequently ascribed, but on this

point there is the most conflicting testimony, and I shall treat of the subject when speaking of pseudo general paralysis. Mental worry and over-excitation of the brain are frequently given as common causes, (Meikle 22 per cent). Heredity does not play such an important part in this as in other forms of insanity (Meikle 15 per cent), but in many cases, however, a distinct neurotic history can be got. Innumerable other causes are tabulated, such as injuries, sunstroke, fevers, diet, masturbation etc. These, I think, can be regarded more or less as mere incidents in the life of the individual, and having no necessary connection with general paralysis.

I shall not enter into the question of climate, race etc., only pointing out as an interesting fact (for which no adequate cause is assigned), that, in some English Asylums general paralytics are stated to constitute from 10 to 20 per cent of all cases admitted, while in Scottish District Asylums the proportion does not amount to more than 2 or 3 per cent.

In many cases these different causes act in conjunction, fast living with all its concomitants, more especially the habit of constant tippling, are

undoubtedly prime factors, these, acting on a brain pre-disposed by heredity or by some inherent weakness, frequently produce general paralysis.

There still remains, however, a very large proportion of cases in which no possible cause can be assigned. The patients have lived an absolutely blameless life, the strictest inquiry fails to discover the history of excess of any kind, not even mental worry or anxiety can be pleaded. The professional or business man, while quietly carrying on his every day work, is as frequently struck down with the disease as the most reckless and fast liver. On examining the cases recently admitted into Saughton Hall, out of 100, I find no cause whatever could be assigned in 50: they all occurred in steady hard-working business and professional men, at the average age of 42. In the remaining 50, a more or less doubtful history of mental worry, drink or syphilis could be got.

It is essentially a disease of middle life; the decade between 35 and 45 shewing the largest proportion. Cases have been recorded as early as 12 (Dr. Turnbull), and as late as 60, but this is very rare. Men are more prone than women to the disease



in the proportion of at least 4 to 1. But amongst the upper classes the proportion of women to men is certainly much smaller. Of the 100 recent cases admitted into Saughton Hall, there was not one occurring in a lady, nor can I find any such case recorded on the Books of the Institution. Clouston states that he has only seen one case of the disease in a lady.

Pathologically and clinically general paralysis can be divided into three stages :-

The 1st or Congestive Stage.

" 2nd or Sclerotic Stage.

" 3rd or Disintegrative Stage.

I shall first shortly run over the clinical stages of the different groups, giving an illustrative case of each, and take a few points in connection with the pathology at the end.

#### (a) GENERAL PARALYSIS WITH EXALTED DELUSION.

This is the commonest and most easily recognised form; almost 60 per cent. of all cases shew at one time or another during the course of the disease the grandiose delusions, so popularly associated with it; and bien être, or general optimism is evinced in about 90p.c.



## THE FIRST OR CONGESTIVE STAGE .

The duration varies from a few months to a year or more. Calmeil and Krafft-Ebing assign even a more prolonged period, but the average is from two to three months.

Amongst the earliest symptoms are a change in the character and behaviour of the patient: he becomes restless, irritable, neglects his business, and may give way to alcoholic or sexual excess: the memory is always more or less affected, and presents the following peculiarity. The memory for past events is good, but the patient cannot recollect the passing events of the day, the words and actions of one minute are forgotten in the next - e.g. shortly after playing any game he cannot remember whether he has lost or won, or will tell the same story time after time. He is also very facile; weak rage and extreme amiability rapidly alternate. Already the characteristic optimism of this form may be evident; it may shew itself by a general jauntiness and intense self-satisfaction: everything is couleur de rose: his health he expresses as "first rate," "splendid" etc.: all his possessions are the best in the world, and he generally talks largely. He may fling his

his money about in the most reckless manner, speculate wildly, or buy up all sorts of useless articles. (A case is reported of a gentleman, who purchased fifty wheelbarrows, for which he could have no possible use).

Occasionally there is a short period of depression. This restlessness and excitability may culminate in an attack of acute mania: frequently there is an epileptic or epileptiform seizure. Closely following, very rarely preceding these mental phenomena, the physical symptoms make their appearance. These are mainly a loss of co-ordination of the muscles of the lips, tongue, legs and hands consecutively. The speech becomes altered, he trips over long words, the utterance is slow, hesitating and slurred, differing entirely from the staccato speech of multiple<sup>cerebro</sup> spinal sclerosis, and closely resembling that of an early stage of intoxication. The face becomes expressionless: the upper lip droops and trembles when articulation is attempted. The tongue is protruded with a jerk, and its surface shews marked fibrillar twitching, especially when broadened. The finer movements of the hands are lost: the power of playing the piano, painting etc., is greatly

interfered with, and the handwriting becomes tremulous: words are omitted or repeated, and frequently mis-spelt. The gait is altered; the basis of support is widened. Patient can walk with some hesitation along a straight line, but if asked to stop and turn suddenly round, shews considerable unsteadiness. Going up and down stairs, especially down, is attended with difficulty, and he is apt to stumble over small obstacles. The erect posture can be maintained with the eyes shut, and there is no loss of muscular power. The superficial and deep reflexes are usually exaggerated, but there are no constant phenomena on the application of electrical stimuli: at any rate different observers record the most discrepant results.

The cases I have examined shewed little change: occasionally a slight increase of muscular contractility to the induced current was noticed. Other physical signs are also present: a dull pain in the frontal region is often complained of: digestive disturbances are common: the temperature is raised a degree or two, especially at night. Alterations in the pupils are frequently seen: they may be unequal: equally dilated or contracted or irregular:

but the iris as a rule responds sluggishly to light and distance. As yet no adequate theory has been put forward to account for these alterations in the pupil. The condition of the fundus is no indication of the vascular condition of the brain. Donders came to an erroneous conclusion as to the vascular condition of the brain during sleep. Finding the veins of the fundus full during sleep, he concluded the same condition existed in the brain. But this theory is negatived by the observation, that when the cerebral circulation is absolutely congested by the action of nitrite of amyl, the fundus of the eye is found anaemic.

In old standing cases optic neuritis or atrophy is not unfrequent.

An important medico-legal symptom at this stage is a tendency to steal.

If a theft is committed, it is usually done in the most open manner, also, as a rule, it is an article for which the person can have no use, and on being released from prison, the same kind of article may be stolen again in a similar aimless manner.

That this tendency to steal is of considerable importance is shewn by the fact, that a few years

ago there <sup>WERE</sup> ~~was~~ at Broadmoor Criminal Lunatic Asylum 36 criminal lunatics (G.P.S.), who had been sent there after committing theft. Of these 33 had been convicted, and the fact that they were suffering from general paralysis was not detected till they had been some time in prison.

Occasionally the erotic tendency gives rise to criminal assaults, or indecent exposure of the person. Murder has been committed as the result of grandiose delusion. Two such cases are on record at Broadmoor. In one case a man killed his child, under the delusion that he was Christ, and had the power to give and take life: in the other, a man believing himself to be possessed of all around him, fatally assaulted a man whom he thought was interfering with his riches.

#### THE SECOND OR SCLEROSIC STAGE .

The patient gradually merges into the second stage: in most cases a distinct line of demarcation cannot be drawn, but occasionally the various stages are well marked.

It is mainly characterised by an exacerbation of all the symptoms of the prodromal stage: the



mental condition becomes one of exalted delusion, amounting frequently to an ambitious delirium. There is no limit to the expansive ideas in this form of the disease. He cannot find words to express his wealth ~~or~~ position: millions, billions, trillions are quite inadequate. A patient once told me that he had a constant river of gold flowing into his pockets.

The idea of great personal strength and general well being is persistent and always present, if it does not reach the extent of his stating himself to be the strongest man in the world. The patient always talks of his health as <sup>"</sup>first rate<sup>"</sup>, even though grave constitutional disturbances are present.

The tendency to steal and hoard up useless rubbish is increased. Memory becomes almost a blank: he may recognise his nearest relatives, but the interest is only momentary. Speech becomes more drawling and indistinct: occasionally is very noisy, shouting and singing in a high-pitched brassy tone of voice, and a peculiar grinding of the teeth is often noticed.

The physical symptoms are also intensified. The face becomes more and more expressionless, has a distinctive greasy, nobby appearance: and the



body is covered with bad-smelling perspiration. The fumbling of the fingers becomes so pronounced that the patient is unable to dress himself, and the handwriting is reduced to a mere scrawl. Gait becomes more and more uncertain and straddling, and loss of power over the organic reflexes begins to shew itself. Sexual power, except in a few rare cases is early lost. The whole cutaneous sensibility is lessened: the reflexes are diminished or lost, as well as the electrical contracity of the muscles. Hands and feet are frequently swollen, and congestive attacks are liable to occur. Deglutition is impaired from loss of reflex sensibility of the pharynx.

At any time during this stage a temporary arrest of the disease frequently occurs, the patient becoming fat, and subsiding into a quiet, contented dementia; but I shall again refer to the subject of arrests.

### THE THIRD OR DISINTEGRATIVE STAGE .

In this, the patient is reduced to a mere vegetative existence: the dementia is profound. True paralysis is present, and the control over the organic reflexes is completely lost. If not entirely

confined to bed, patient is lifted into an arm chair where he sits like a log, grinding his teeth, or muttering remnants of his former grandiose delusions.

Deglutition becomes more and more difficult.

Trophic bed sores form, and if death does not occur from simple exhaustion, or during a congestive attack, some inter-current affection, usually of the kidneys or lungs, carries him off.

CASE (1) General Paralysis with Exalted Delusion.

J. McG., admitted July 8.87, age 42, married, hotel keeper.

History :-Has always been a man of sanguine temperament, prone to attempt undertakings beyond his power; but has always led an exceptionally steady life, and has never exceeded with regard to stimulants.

About three years before admission commenced to shew signs of insanity. His naturally sanguine disposition increased markedly: he constantly interfered in other peoples' business, writing letters to various public bodies suggesting vast undertakings, and his memory became distinctly affected.

Almost synchronously with this altered mental condition his wife states that she noticed a change in

his speech, "he spoke thick". During these three years he remained in much the same condition, having occasional attacks of excitement, but was able to be kept at home: <sup>finally</sup> ~~but~~ his grandiose delusions causing him to interfere more and more with the working of the business, rendered his being placed in an Asylum necessary. On admission he was found to be in the second stage: the motor signs were well marked. Pupils were equally dilated, responding very sluggishly to light. Ophthalmoscopic examination revealed slight pallor of the disc. Tongue protruded with a jerk and shewed distinct fibrillar twitchings; face heavy, expressionless and has the peculiar greasy nobby appearance; the upper lip droops, and the muscles twitch before articulation; speech distinctly affected, being slow, stammering and thick, long words being characteristically slurred over. Gait somewhat straddling, goes up and down stairs with caution. Cutaneous sensibility is diminished, as also are the superficial and deep reflexes. Mentally, he exhibits in an extreme degree the condition of bien être. With him everything is "splendid"; he was never better or stronger in his life;

his hotel is the finest in the world; there is nothing anywhere to compare with it; he is the richest man in the world, and possessed of unlimited power." Is very facile; violent rage and extreme amiability rapidly alternate. The memory for past events is fair, but he cannot remember how long he has been here, or how he came.

In a few months the delusions of grandeur became even more marked, calling himself the "King of the World", and the possessor of millions and millions of money.

In Sept.87.: had an excited turn, after which his mental and physical condition rapidly deteriorated, large, sloughing sores formed on his buttocks, and he became quite demented.

In Dec.87. he began to improve physically; the sores healed up, and the mental condition brightened up a little. He would sit all day muttering millions, billions, trillions, or else grinding his teeth when not speaking. He stole and hoarded up all the rubbish he could lay hands on.

During 1888, had three mild apoplectiform seizures, but the mental condition did not vary much.

In May of 1889, began to break up, and entered into the third stage. All power of voluntary movement, and control over organic reflexes was completely lost.

In June 89. had a congestive attack. Large sloughs formed over the buttocks.; gangrene appeared in both feet, and on the 9th of July he died during a congestive seizure.

The only point, slightly unusual in this case, was the length of the prodromal stage, according to his wife nearly three years; also the arrest at the end of the second stage, lasting for eighteen months. Otherwise it presents an actually typical example of this form of general paralysis.

The total duration was as nearly as possible five years. This is certainly longer than the average, but I find on comparing the duration of the disease in pauper and private patients, that in the latter it is nearly double. At the Wakefield Asylum the average duration was 20.7 months, whilst in my cases it was as nearly as possible four years.

#### (b) GENERAL PARALYSIS WITH MELANCHOLIC OR

#### HYPOCHONDRIACAL DELUSIONS .

Occasional attacks of depression are not



uncommon during the prodromal stage of the 1st form, but there exists a small proportion of cases, which throughout the whole course of the disease, are characterised by marked melancholic symptoms; in which, if the bien être be present at all, it is only evanescent, and does not amount to more than a general feeling of well being.

This is the rarest of all the types, only occurring in about 3 or 4 per cent (Clouston)

During the prodromal stage the restlessness and irritability are well marked, but there is not the same tendency to sexual or alcoholic excess as in the exalted type. The patient seems to recognise that he is unwell, may even exaggerate his symptoms: Great frontal headache is frequently complained of, and sleeplessness is almost a constant symptom. There is often a vague fear of impending evil: he imagines people are speaking ill of him, or plotting against him. Occasionally food is refused, under the delusion that it is poisoned. There may be a short period of excitement, or even a maniacal or epileptic attack. The physical signs of the prodromal stage are well marked.

2nd Stage. As the disease progresses the



the melancholic symptoms become more and more pronounced. Persistent refusal of food requiring forcible feeding is frequent, owing to the delusion that it is poisoned. I have noticed that such cases are apt to appropriate the melancholic delusions of other patients.

The contrast with the 1st type is now very marked; the buoyant jaunt air of the former is replaced by a miserable dejected appearance; the patient is conscious that he is seriously ill, bemoans his condition and wishes he were dead; but owing to the paralysis of will suicide is seldom attempted. Hallucinations of sight and hearing are not infrequent. Occasionally there is an excited or motor melancholia, but, as a rule, these cases quietly sink into the terminative stage. This is characterised by a rapidly increasing dementia. Patient becomes heavy and torpid, refusing to speak, or reply to any stimuli. Paralysis is early in making its appearance, and death from simple exhaustion frequent.

All through the course of the disease the motor signs are well marked, and it runs a more rapid course, usually proving fatal in a little more than

a year.

CASE (II) General Paralysis with Melancholic

Delusions. J.S. admitted April 30.87. age 40

Single. Chemist.

History :- Has always been a steady hard-working man, doing a good business; no cause whatever can be assigned for his insanity. Three months ago he became groundlessly suspicious of his assistants in the shop, accusing them of robbing him; also imagined he had poisoned customers by giving them wrong medicines. Was at this time very restless and sleepless, but continued at work till the beginning of April, when he had a maniacal attack, lasting for 3 weeks, for which he was treated at home. When the excitement subsided he was stated "to be silly and full of foolish ideas?"

Nervous System :- Pupils unequal, the left being the larger, very sluggish, left almost immobile; upper lip droops, and the expression is one of hebetude; tongue is protruded with great hesitation and in a jerky manner, its surface shows fine fibrillar twitching; superficial and deep reflexes are exaggerated; gait is uncertain and basis of support

considerably widened; finer movements of the hands much impaired. Temp.morning 98.6°. evening 99°.

Mental Condition:- Complains of general weakness and almost constant pain in the head; is conscious that his memory is impaired and said he was unable to dispense medicines or make up his Books, owing to the "inability to use his fingers with accuracy". When asked to sign his name, did so in a slow laboured manner, of which he was perfectly aware. Speech is slow, hesitating and slurred; of this, and of the alteration in his gait he is also fully conscious. Is very despondent about himself; says he is ruined, that he has nothing now to live for, and wishes he were dead.

He continued in the same melancholic condition, shewing a gradual but sure down hill tendency, till May 5th, when he had an excited attack lasting for 12 hours; after which was very dull, apathetic, and would not speak; the next day brightened up a little but always spoke in the same despondent manner. On the 9th of May, he became again very dull, refused all food, requiring to be fed. The physical condition rapidly deteriorated; speaking, walking and swallowing became more embarrassed.

May 11th. Restless last night, refusing to stay in bed; stupid and heavy in the morning; becoming dirty in his habits.

May 14th. More demented and very dirty.

" 28th. Almost unable to walk without assistance; will not speak a word.

" 22nd. Had a congestive attack last night, from which he never rallied, and died at 4 p.m.

The total duration of this case was only 5 months. The prodromal stage lasted 3 months; the 2nd and 3rd were run together so as to be undistinguishable. From the very first the downhill tendency was well marked, every day almost making a difference. At no time during the illness was there any sign of optimism and the physical signs were exceptionally well marked. On P.M. examination the brain shewed characteristic changes.

(c) GENERAL PARALYSIS WITHOUT DELUSION ,

MANIFESTED ONLY BY DEMENTIA .

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To this type belong, I think, those cases which are sometimes described as being without mental symptoms; the dementia being occasionally

only slight, or occurring late in the course of the disease, escapes the notice of the reporter.

Duchenne and others of the French School hold that there are 2 forms, 1 with and 1 without, mental symptoms; but there is practically a unanimity of opinion amongst British Authorities, that, in this country at any rate, general paralysis does not exist apart from mental phenomena; and, taking into account the large amount of brain surface affected, and the actual destruction of the nerve cells, it is almost impossible to conceive of a disease of this nature going on for any length of time without interfering with the conductive or creative power of the brain.

This form is frequently confounded with the pseudo general paralysis, produced by chronic alcoholism.

The prodromal stage may last for years, in fact the disease seems occasionally to be arrested early in the 1st stage, and for years the patient may exhibit no more than a mild, non-progressive dementia; characterised by loss of memory, irritability, general childishness and a characteristic facility of disposition, combined with the physical signs of



inequality or alterations in the size of the pupil, slight facial and lingual tremors, and impairment of speech and gait. These symptoms may follow on an attack of excitement or depression, but what usually first attract attention are the alterations in speech and gait; the interference with the finer movements of the fingers; the gradual loss of memory, and general stupidity. As the case progresses the dementia slowly increases; it is of a mild, placid description. Patient evinces, in a minor degree, the bien être, as shewn by his general contentment and inability to realise his position and surroundings. As he never originates an idea he is without a delusion; the mind simply seems to fade away. Epileptic or apoplectiform seizures are almost never seen in any of the stages, nor is there the same tendency, as in the previous forms, to an evening rise of temperature.

The physical symptoms progress in the same slow manner, the speech and gait become gradually more and more implicated till actual paralysis is produced, and even when completely powerless and bedridden, he may live for several years; death as a rule resulting from sheer exhaustion. Out of 6



female cases I have had at different times under my observation, 4 belonged to this class.

This is certainly the most prolonged form, lasting 5 or 6 years, and the one in which arrests are most frequent. These arrests may occur at any stage in any of the types, but are most common at the end of the 2nd; the patient remaining for months in statu quo, becoming stout and well nourished; It is interesting to note that occasionally some intercurrent affection, especially if of an inflammatory nature, such as erysipelas etc., has a tendency to produce such arrests. I have seen one case so arrested for several months by an attack of inflammatory diarrhoea. Such remissions are only temporary, and artificially induced inflammations have not a similar effect.

These arrests are not so nearly perfect as the remissions occasionally seen in the exalted or melancholic groups; which are sometimes so complete and lasting, as almost to raise hopes of recovery. They are of 2 kinds, one in which the physical symptoms abate, the mental persisting; the other in which the mental condition greatly improves, but the motor signs continue unchanged or only slightly

modified; the latter being by far the commonest.

The average duration in 42 cases was 23 months

(Parchappe). The patient is never the same man, no matter how complete the apparent recovery may be, and sooner or later he breaks down the disease running its usual course.

CASE III General Paralysis with dementia only.

A.C. admitted Oct 84. age 44, married, merchant.

History :- His wife states that she can trace the commencement of her husband's illness as far back as 82:- At that time he began to complain of loss of memory and inability to take the long walks he previously used to; an unnatural irritability of temper was also noticed. After two months stay at the seaside, he improved a little and resumed his work, but very gradually he seemed to break down; the loss of memory became more noticeable, and he grew dull and stupid. Hand writing became affected, and he made silly mistakes in his Books. Early in 83. had to give up work. At this time his speech and gait were noticed to be distinctly impaired; during the year had a mild attack of excitement which soon subsided but left him more demented than before. At no time during the illness did he shew a trace of

any delusion.

Antecedent History:- Has been an exceptionally steady liver, almost a teetotaler. There is a slight collateral history of insanity.

Physical State on Admission :- Pupils unequal, right much dilated; face singularly stolid and expressionless; upper lip pendulous, quivering before articulation; tongue tremulous, and shews marked fibrillar twitching; reflexes are considerably diminished.

Gait much impaired, cannot walk along a straight line, and on turning round is particularly unsteady.

The handwriting is very laboured and shaky, letters are omitted, and words misspelt; in fastening his coat he fumbles with the buttons most characteristically. Speech is slow, very indistinct and slurred. Temp. normal and shews no evening rise.

Mental Condition :- Patient exhibits only a placid dementia, seems to have no desires of any kind, never speaks unless addressed, and then answers yes or no indiscriminately or repeats the question automatically. Memory seems almost a blank. Sits all day in an armchair smiling contentedly, and will not stir unless compelled. Is very dirty in his habits.

With little change this condition continued for 2 years, when he began to break up; completely lost the powers of speech and voluntary movement, and, after being bedridden for over a year, ultimately died of congestion of the lungs.

The total duration of this case was about 5 years; it was characterised throughout by gradually increasing dementia, and there were no congestive or other seizures during its whole course.

While a large proportion of general paralytics conform more or less closely to one or other of these types, cases are not infrequently seen in which they are combined; the patient shewing alternating periods of exaltation and depression, before ending in the common grave, dementia.

CASE (IV) Mixed General Paralysis, shewing also arrest at end of 2nd stage.

J.P. admitted May 23.88., age 40, married, clerk.

History :- About a year ago, patient's friends noticed a change in his disposition; he became irritable, excited, could not sleep or settle down to anything, and had to leave off work in consequence. Almost at the same time the speech and

memory were noticed to be impaired.

In Jan. of 88. had an epileptic fit, after which his mental condition became much worse; he then developed exaggerated ideas of his wealth and importance, also complained of imaginary enemies persecuting him, and was occasionally violent.

Antecedent History :- The closest questioning proves that he has led a perfectly steady life in every respect, and that there is no history of heredity.

Physical Condition on Admission : - Pupils markedly unequal, left much dilated, iris responds sluggishly to light and distance. Superficial and deep reflexes exaggerated. Tongue shews distinct fibrillar twitching; face heavy, lips tremulous; speech much affected; gait does not shew any marked change beyond a slight broadening of the base. Temp. rises a degree or so at night, but is on the whole subnormal.

Mental Condition : - Without shewing any exaggerated delusion, evinces a certain amount of bien être; speaks of his health as a little out of sorts but improving daily, and that he will soon be fit for business again, when he will return at a greatly increased salary. At times, however, is inclined to



be depressed, weeping copiously and readily, but is easily deflected from this, and the next minute will be laughing and talking boastfully of his son being the finest and cleverest boy in the world.

Up till July 88., he continued in much the same condition, only developing more grandiose ideas, e.g. spoke of building large distilleries, floating companies, etc., but, even during this time, he was for a day or two at a time subject to fits of despondency.

Early in August his delusions completely changed, becoming of a distinctly suspicious and melancholic type. Said his clothes were tampered with, poison put into his food, (this delusion he copied from another patient), and that his brain was hopelessly affected. His present, was now exactly the opposite to his previous mental condition, for while, as a rule, melancholic and depressed, there were days during which he was quite happy and cheerful, talking of floating large companies and returning to his work at an enormous salary.

He remained in this state till Sept 88. when the depression became profound, and his physical health rapidly deteriorated; the face assumed the

characteristic greasy, nobby appearance, and the saliva collected in large quantities and dribbled from his mouth. He insisted he was being poisoned with mercury and could not live long. For 4 months he continued profoundly depressed, requiring to be fed with tube on several occasions, and becoming very dirty in his habits.

In Jan. 89. became excited and noisy, frequently shouting and singing all night; all his grandiose delusions returned. Said he was heir to three properties, and that he had been promised £10,000 a year to return to his old post.

For four months he was a typical maniacal general paralytic, shouting out his delusions all day, dirty and destructive in his habits. The physical condition still further deteriorated (though he now ate enormously), and the paresis of speech and locomotion greatly increased. Just as he seemed rapidly passing into the 3rd stage (in May 89), the excitement abated, the physical health greatly improved, and he settled down into a condition of quiet placid dementia.

Up till the present time he continues in same state; the physical signs of inequality of pupils,

facial and lingual tremors; difficulty of speech and locomotion persist, but are no worse than they were 10 months ago; and the mental condition continues one of quiet, contented dementedness; is perfectly clean in his habits, and has grown quite stout. The case has now lasted for three years and shews no signs of breaking up.

It may be asked in passing - does not this case illustrate well the fact, that mania, melancholia and dementia may depend on a common pathological condition: and that mental symptoms alone, afford no basis for the classification of insanities?

Here is a general paralytic, shewing in 3 years well marked mania, melancholia and dementia, yet no one could say he had 4 kinds of insanity. He suffered from a distinct disease, general paralysis; which exhibited at various times during its course, the clinical symptoms of mania, melancholia and dementia. No one can deny the causal unity of the various symptoms, which were merely dependent on some pathological incident in the progress of the disease.

CASE (V) of Prolonged General Paralysis, shewing Remission at End of 1st Stage, and Arrest at End of 2nd.

H.B., admitted Sept. 8th 76: age 39: married: manufacturer.

History :- A few months previous to admission became depressed and shewed unusual irritability. This was followed by an unnatural exuberance of disposition, great restlessness, and a tendency to buy up useless articles of furniture for a house he had purchased: on one occasion purchasing £300 worth of trashy china. This lavishness increased - he went into shops and purchased so extravagantly, that the shop-keepers refused to execute his orders; also wrote to his agents, telling them to purchase estates, etc. When remonstrated with, became violent, and an assault on his medical attendant led to his being placed under certificate.

Antecedent History : -No history of excesses of any kind can be got; but there is a distinct neurotic history in the family.

Physical Condition on Admission : - Patient's mental condition caused particular attention to be paid to the state of his motor functions. Repeated examination, however, failed to detect anything

beyond a slightly studied character in the speech and gait, but there was no facial or lingual tremor, nor slurring over words. Pupils were equally dilated, and re-acted readily to light and distance.

Mental Condition on Admission : - His whole expression is one of conscious superiority and general jauntiness; talks volubly and in an excited manner, constantly boasting of his wealth, property and skill at games. Is extremely facile, outbursts of passion at his detention, alternate rapidly with excessive goodnature and delight at his surroundings; calling the place a palace, and expressing his thanks for being brought to such charming quarters. During the month he several times violently assaulted the attendants in order to escape; was sleepless, excited, and full of grandiose delusion

In October, though still subject to outbursts of passion, became much quieter and shewed considerable mental improvement; spoke less about himself and to a great extent lost his grandiose ideas; but a slight thickness of speech became evident, and fibrillar twitching of lips and tongue was noticed. By November, the alteration of speech and other physical signs were so well marked, as to leave no



doubt as to the diagnosis; but the mental condition distinctly improved; entirely lost his exalted delusions, only shewing a general optimism, and a tendency to regard everything in the brightest possible light; was able to mix freely with the other patients, entering readily into amusements etc. For several months he remained in this condition, the physical signs continuing well marked. In June 77. was discharged on probation. During the year he lived at home, getting on fairly well but requiring constant supervision. In July of 78. had an attack of depression and attempted suicide by cutting his arm at the elbow, and was in consequence brought back to the asylum. On re-admission, the physical signs were found to be very well marked and the mental condition was one of extreme melancholia with strong suicidal tendency. This condition gradually passed off, and in Jan. 79. had become quite demented.

For the next three years he continued in ~~the~~ a condition of quiet, goodnatured dementia, the physical signs being well marked, but not progressing. He died quite suddenly during a congestive attack on the 25th of Oct. without ever passing into the 3rd stage.

This case shewed in many respects considerable variations from the ordinary types. 1st. The mental symptoms were very well marked for months before the physical made their appearance, the latter only becoming evident when the mental condition distinctly improved. 2nd. The strong suicidal tendency evinced at the termination of the period of remission. Occasionally during the prodromal stage suicide is attempted, and in the latter stages vague attempts at self injury are sometimes seen, but it is very seldom that a deliberate, planned attempt, as in this case, is made when the disease is well marked. 3rd. The total duration of the case, 7 years in all, is unusual even in the better class general paralytic, the arrest at the end of 3rd stage, lasting about 3 years, mainly accounting for it.

The case also brought out 3 points of considerable medico-legal importance, to which I shall shortly refer. 1st. Three months before admission patient became distinctly aware that there was something the matter with him; as he himself expressed it "felt as if he were going out of his mind". So, after consultation with his lawyer, he made a perfectly just and equitable will; though there is

no doubt that at the time he was in the prodromal stage of general paralysis. , 2nd. His wife in the law courts attempted to repudiate some of the early extravagant purchases he had made, but failed to do so.

(It was decided by the Judge, that in such cases the question turns upon the insanity of the buyer being known or evident to the seller. The trader cannot be expected to detect the more delicate symptoms of the disease, or to discriminate between the extravagance of the paralytic and that of many other foolish, but not insane customers.)

3rd. While at home, during the remission, his wife became pregnant: she was delivered of a healthy child, of which he was indubitably the father; and which is now living and in every respect healthy .

While sexual appetite and capacity is not infrequently increased during the prodromal stage, it is almost invariably lost as soon as the disease is well marked. Meikle records a case somewhat similar to this one (Meikle on G.P. page 94).

#### CASE VI.

CASE (VI) In which Tabic Symptoms preceded for a Year the Development of General Paralysis.

J.T. admitted Nov.12.98. age 42: married: banker.

History :- When quite a young man suffered from syphilis, followed by severe secondary symptoms; from this he made a good recovery, married 13 years ago, and has a family of healthy children.

In 87. had at long intervals 3 attacks of petit mal, and also complained of slight loss of memory: at this time it was noticed that the pupils were permanently and equally contracted, and that the knee jerk was entirely lost in both legs. There were no mental symptoms observed beyond an unusual irritability. He was treated with large doses of bromide and iodide of Potass.

Early in 1888, complained of gastric symptoms, and had also several attacks of petit mal. Mercury, both internally and by inunction, was pressed to salivation, but with no effect. In Sept. of 88, complained of pain in the head, general wretchedness, and an increasing inability to work: but continued at his business till Nov 5th, when he was brought home from the Bank in consequence of a sudden attack of aphasia, twitching of left side of mouth and

loss of power of the hands was also noticed. Temp. in the evening was  $101^{\circ}$ . This attack quickly passed off. Mercury was again given to salivation. In Jan. 1889, though the myosis and loss of tendon reflexes persisted, there was no affection of speech, lips or tongue, and mentally shewed only increasing loss of memory and undue irritability. Though unfit to resume work was able to play golf etc. From January to August there were three epileptiform seizures; after the 2nd of these in May his speech was noticed to be affected, and facial and lingual tremors became apparent. His condition since then has been one of intermittently increasing debility both of mind and body; the speech and memory becoming more and more impaired, and he was subject to frequent attacks of excitement which led to his being brought to the asylum.

Physical Condition on Admission :- Complains greatly of pain in the head, but in no other place: pupils equally contracted, almost immobile; face heavy, sodden and expressionless, facial muscles twitch and quiver before articulation; tongue is jerked out and shews marked fibrillar twitchings. Speech is very much affected, when excited he can



hardly articulate, but when speaking quietly long words only are slurred over. Hand writing is shaky, words are misspelt and omitted, and he cannot dress without assistance. In walking the feet are put down in an uncertain manner, the gait is unsteady and swaying, and the erect posture cannot be maintained with the eyes shut. Knee reflexes are entirely abolished, muscular sense very defective, and cutaneous sensibility much diminished.

Mental Condition : - No exalted delusions whatever but says his health is excellent, that there is nothing the matter with him, and is very indignant at being brought to an Asylum. Memory very defective, cannot tell when he left off work, thinks only a few days ago. For a few days continued very indignant at his detention, but soon settled down and shewed marked melancholic symptoms; complained of great pain in his head and stomach, said he was going to die, or that something dreadful was going to happen to him, but took his food well and slept fairly.

Up till the beginning of January he remained in the same depressed hypochondriacal condition, but the physical condition gradually deteriorated,

→ April 20<sup>th</sup> Had a congestive attack at 6.30. P.M.: Pupils →  
unequally dilated, right the larger: eyes squinted upwards  
and to the left: there was slight twitching in the left  
side of the mouth and left fingers. Died at 11. P.M.

6.40 P.M.	Temp	103°
6.50	"	104°
7.15	"	104.6°
7.30	"	104.8°
7.45	"	104.9°
8	"	104.9°
9	"	104.8°
9.15	"	105°
11	"	105° Died
11.15	"	104.

the paresis becoming more and more marked, and loss of power over the organic reflexes commenced. On the 21st of January had a severe epileptic fit, after which he grew rapidly worse, lost to a great extent the power of locomotion, and grew profoundly demented.

At the present date, April 6th is far advanced in the 3rd stage. Large sloughing sores have formed wherever there is any pressure: he is still able to articulate "first rate", when asked how he is, but the speech is reduced to a mere drawl and the paralysis of voluntary movement is complete.

← In this case the patient certainly suffered from syphilis in early youth, but I do not think it had much, if any connection with the ultimate development of the general paralysis. However I shall treat of this subject later on. What I want to bring out here, is the fact that distinct tabic symptoms existed for nearly a year before those of general paralysis made their appearance.

Several writers, for instance Bevan Lewis and Clouston, describe such cases as constituting a separate type; the latter also states that he has traced it as a true ascending lesion (Clouston on

Mental Diseases, Page 364). Of this, however, I have never seen any evidence either clinically or pathologically. The clinical symptoms of an ascending lesion, except in such diseases as acute ascending paralysis of Landry, etc., are very obscure; but, we know by experience, that in all chronic spinal affections as soon as the morbid process reaches the medulla, marked bulbar symptoms make their appearance, or death ensues from interference with the respiratory centre.

With regard to the pathology of the pseudo tabic form, Bevan Lewis in his book on insanity, describes it as a true "angio-neurosis." On page 504 he states, "The engorgement of the blood vessels of the posterior columns of the cord is followed by transudation through their walls, and the lymphatic functions are stimulated to increased activity. Usually the latter function suffices to re-establish the balance, and the tabic symptoms at first apparently subside: but occasionally they persist; and then we meet with a true degenerative change in the posterior columns. The pressure of the engorged vessels in the sensory tract of the cord is the essential cause of the early tabic symptoms and

"sensory disturbances of many cases of G.P."

A little further on he says, "We must not be understood to imply that the changes in the posterior columns of the cord in those cases of G.P. characterised by persistent tabic symptoms are due to the identical lesions found in typical tabes dorsalis. We have not here an ascending sclerosis of these columns, but a very distinct affection, which appears to commence generally and simultaneously through large tracts of the cord; in genuine tabes we perceive extensive and extreme destruction of nerve fibres, whereas in the pseudo tabic general paralysis we often find the nerve fibres little (if at all) implicated."

I believe that occasionally a condition identical with general paralysis develops primarily in the cord, and that when the brain becomes affected a new focus is started, quite independently of the previously existing spinal affection. And, as with the exception of the prior implication of the cord, such cases usually conform to the melancholic type of the disease, I see no reason for assigning them a separate class.

Cases of locomotor ataxy, which have been



followed by general paralysis are frequently recorded (B.M.J. July 1st 78.) (Meikle. Lancet 21st, 28th. 81) etc., but I see no reason for connecting the two as regards cause and effect. Dr Gowers, fully explains the position, in his book on the nervous System p. 320, where he states, "another very important and frequent complication of Tabes is General Paralysis of the insane. The two diseases have many alliances. It is probable that syphilis predisposes to General Paralysis, as well as to tabes. Reflex iridoplegia is common in both diseases. The two maladies are often combined, and the symptoms of the one or the other may preponderate."

" Thus many general paralytics present symptoms " "of tabes, and its characteristic lesion is found " "after death; on the other hand, cases of tabes may " "present slight symptoms of general paralysis, perhaps only slight optimism and mental weakness, which " "may remain subordinate, or may increase to a pronounced and preponderant degree. It may be difficult to say in which category a case should be placed. It is sometimes said that a case may commence as ataxy, and may change to general paralysis, but a more correct expression of the facts is the co-existence

" co-existence of the two affections, and the dominance "

" of the symptoms of one or other. "



I

Edinburgh  
Grange Road  
Edinburgh

Dear Father & Mother,

Better late than never  
I had not the paper  
until I got it down  
here this evening.

The weather has been most undecided since I entered this place with a slight reception I have say you will shape the keeping better in

My dear John  
 I am so glad  
 to hear from  
 you  
 and hope you  
 are well

## II

grandfather

Cuthbert

1

Thomas Marshall



## HANDWRITINGS OF GENERAL PARALYTICS .-

1. This is taken from a case within three months of its commencement. It shews incoherence, increasing as the letter progresses ; also, at the beginning, the handwriting though shaky is fairly good, but it gradually falls off, ultimately becoming almost illegible. This is almost always the case; the patient with an effort, is able for a short time to concentrate his attention and to a certain extent command the movements of his fingers, but as he goes on his mind wanders and his hand meanders aimlessly over the page.

2. Are those of J. Mac. (Case 1) and were written during the 2nd and 3rd stages. That of the 2nd stage shews the scrawl, which, if left to themselves, such patients are apt to produce. The attempted signature shews the almost complete paresis which is characteristic of the 3rd stage, just before paralysis sets in.

3. These are from the case of J. T. (No. 6). They illustrate very well the writing in the 2nd and 3rd stages. In the earliest specimen the shaky laboured style, the repetition of words, the omission of



III

Saughnuton Hall  
base vi 27 Nov 1889  
Gorgie.

My dear Wife

I trust the children  
and you and yourself are  
quite well I do hope, &  
I send my love to you  
all, I hope to be home to  
be home on Monday,  
but as I have no money  
here, would kindly send  
me two pounds to the above  
address on receipt. I

Feb 7 - 1890

John Thomson.  
Bratislava  
Edinburgh

John Thomson  
I and/or son  
Edmund  
I oh I oh me do  
vms to a  
March 90

My dear Wife

I long long to see you  
and I don't doubt you will be  
longing to see me, this most abso-  
lutely writing with a pin point. I can  
get on at all. Let me know  
you how the little ones are and  
I will be delighted to hear all.

And hope with to see you  
for good soon

Your loving husband

John Thomson

Jan 12  
1890

John Thomson  
H. W. W.  
Ch. A. W.  
Apr 90



letters and the mis-spellings are very noticeable, and in each succeeding specimen the characteristically increasing paresis is well marked. After his last attempt of April 90. the paralysis became absolute.

IV.

Master Jimmie Pearson  
 Ardcarrach  
 Carradale  
 Kintyre      Aug 10. 88

Mrs. James Pearson  
 Ardcarrach  
 Carradale  
 Kintyre      March 89







The Charts on the opposite page were taken from cases in which no lung complications existed. They shew some of the variations of temperature constantly observed in the course of the disease..

The 1st is that of J.Mac.(Case 1). It was taken during the last months of his life. It shews the usual evening increase, and also the marked rise that always occurs during congestive seizures. The post mortem temperature was also taken, as cases have been recorded in which it rose after death. In this, as in the other cases I have made observations on, the result was negative.

The 2nd is that of J.P.(Case 4). This was the case of Mixed General Paralysis. It shews a relatively low temperature, which only increased slightly during the excited periods, becoming persistently subnormal after the arrest.

Such low temperature is not infrequently observed in the melancholic type of general paralysis.

The 3rd was taken from a very rapid case which proved fatal in nine months. (Patient was transferred to another Asylum, where he died shortly afterwards.) It shews a high temperature both in the morning and evening.

An absolutely high temperature continuing for long without any complications to account for it betokens a very rapidly progressing case.

The 4th is that of J.T. (Case 6). It shews the usual evening exacerbation and, on two occasions, transitory rises which were unattended by any mental or bodily symptoms to account for them. When the case reached the 3rd stage, it will be seen that the morning and evening temperatures became absolutely high, as it does shortly before death in a large proportion of cases. Up till the 20th of April there were no congestive attacks to account for the marked rise. The hectic condition produced by the large sores, was, to a great extent responsible. On the 20th there was a well marked congestive attack, attended by a still further rise. Immediately after death the temperature began to fall.

Different theories have been put forward to account for these variations of temperature in general paralysis. In the 3rd stage, intercurrent affections are no doubt considerable, but by no means the sole factors: and during the course of the disease maniacal attacks may be attended with a marked rise of temperature; but the almost persistent

evening rise, shewn even in the very earliest stages, is due to the morbid process going on in the brain itself.

Landois and Eulenberg suppose thermic centres in the anterior central gyrus, and others locate such centres in the pons, or upper region of the spinal cord, to the implication of which, the temperature changes are due: moreover, numerous experiments on animals conducted by Hitzig, Wood, Richet, etc., prove that injury to the front of the brain is followed by a considerable rise of temperature.

It is possible that implication of these centres by this disease may account for the changes in temperature, but it is more likely that the inflammatory condition of the brain is the immediate cause of this fever symptom.



## PSEUDO, - or SIMULATED GENERAL PARALYSIS.

This condition is one which can be produced by many morbid conditions of the brain, but by far the commonest and most difficult to differentiate from true general paralysis are the train of symptoms, mental and somatic, which frequently result from alcoholism or syphilis.

While alcohol certainly is an exciting, and syphilis may be a predisposing, cause of general paralysis, and both produce a distinct form of insanity; they in many cases give rise to a condition very closely simulating general paralysis, and which is frequently only capable of clinical differentiation during life. Should the case, however, end fatally, the pathological appearances are quite distinctive.

### ACUTE ALCOHOLISM SIMULATING GENERAL PARALYSIS.

Delirium tremens could never be confounded with general paralysis, but acute, or subacute alcoholic mania frequently presents strong points of resemblance, and it must not be overlooked that excessive drinking is not infrequently an early symptom and complication

of general paralysis.

In alcoholic mania exalted delusions are often found (Bevan Lewis 23 p.c.) but there is always a limit to their expansiveness; and no matter what form such delusions take, they are as a rule, strongly tinged with suspicion. This, along with their persistent unvarying nature, usually serves to distinguish them from the similar grandiose ideas in true general paralysis. During the prodromal stage, hallucinations and illusions of the special senses are almost constant; the general restlessness is greater; the patient does not exhibit the same facility of disposition and is more prone to violence. Physically the signs are well marked; but they are too well marked, the great, almost the pathognomic difference between the two conditions is, that in six weeks the patient is in a condition it would take a true general paralytic six months to reach.

The muscular tremors are general, not localized to any groups of muscles; the tremors of the hands are out of all proportion, and in the same manner the alterations of speech and gait are exaggerated, the tongue too tremulous. Temp. may be subnormal,

and shows no evening rise.

The furred tongue, morning vomiting and other physical signs of alcoholism are also of great importance.

#### VII. CASE of Acute Alcoholism simulating General Paralysis.

A.S. age 43, married, clerk, admitted July 83.

History. Though not a steady drinker, has been for many years in the habit of taking occasional heavy bouts; after one of these - during which he took 12 bottles of whisky in a very short space of time, he went to the police office and made some complaint about his house: his manner was so peculiar that he was detained, and after examination by two medical men, was placed under certificate.

Physical State on admission. Motor power is good, except that there is a degree of immobility of the upper lip, becoming more marked when patient talks quickly; tongue is tremulous and shows distinct fibrillar twitchings. Gait somewhat straddling; tendon reflexes are exaggerated; cutaneous sensibility is normal; pupils equal, somewhat sluggish. Digestive and other systems normal.

Mental Condition on admission. Patient exhibits a considerable degree of restlessness, general excitement and mental confusion: his expression is one of marked self-complacence. He talks in a rambling manner chiefly about himself, and in speaking hesitates over consonants, and has difficulty in pronouncing his words clearly, just as if he were a little intoxicated. Before articulation the facial muscles show a wave of muscular twitching. Has no very marked delusions; but thinks himself to be a remarkably lucky fellow, and getting on splendidly at his office, even though several individuals tried to ruin his prospects by calumniating him. Says everything is "splendid" here, praises in an extravagant manner the buildings, trees, flowers, etc.; but is anxious to get away in order to obtain the large sums of money, he is sure to make by his work as a clerk. The memory, more especially for recent events, is distinctly affected. During the following month he remained in much the same condition, but occasionally showed marked irritability and suspicion of those around him; and, was on several occasions excited, noisy and violent; then his



grandiose ideas developed into extravagant delusion, e.g. called himself "King of the United World," and demanded his release in order to be crowned at Holyrood; the stiffness of the lips and fibrillar twitchings increased, and his speech and gait became more affected. After a three months' stay he was transferred to another asylum, the last note about his case being, "Patient has been restless for the last two days, breaking windows to obtain glass to make his orders as King of Scotland. He was removed to the strong gallery, where he was quite happy and contented. Always insists he is a King, and has most extravagant delusions about his power and greatness. The physical signs of General Paralysis(?) are well-marked."

Subsequent History. Shortly after transference he began to improve slowly; the physical and mental symptoms entirely disappeared, and after a few months' residence, was discharged recovered; resumed his work; and remained perfectly well up till his death, which occurred some years after from pneumonia.

Up till the day this patient left, it was impossible to say that he was not a true general paralytic; more especially as the friends for a long



time concealed the alcoholic history; even taking it into account, it was a case in which diagnosis had to be deferred, as it was quite possible that the alcoholism was a complication of General Paralysis.

Against it being General Paralysis; was the absence of any premonitory symptoms; the vein of suspicion underlying the exalted delusion; the fixity of the delusions; he was always a King, his ideas of wealth were always within limits, and though generally well-satisfied with himself, and things in general, was not facile; the pupils were equal and active.

In favour of general paralysis were, the age of the patient; the absence of marked physical signs of alcoholism - the tongue was only slightly furred, and the tremors were confined to that organ and the lips: the stiffness of the lips and the alterations of speech and gait were more characteristic of G.P. than of alcoholism, and most important of all, the mental and physical symptoms for a time distinctly exacerbated.

The result proved that it was a pure case of alcoholic insanity. I have never seen a case of

recovery from general paralysis (so-called) in which an alcoholic or specific history could be excluded.

#### CHRONIC ALCOHOLISM SIMULATING GENERAL PARALYSIS.

Magnan in his book on Alcoholism (page 77), lays particular stress on the termination of chronic alcoholism in general paralysis; recording four illustrative cases. A careful study of these, however, fails to satisfy me that they are true general paralytics. He seems to have based his diagnosis on the facts, that during life his patients exhibited dementia with grandiose delusions, along with many of the motor signs of general paralysis; and that on post-mortem examination he found adhesion of the membranes, and sclerosis of the brain and spinal cord. That these clinical symptoms and pathological appearances can be produced by the action of alcohol alone is undoubted. Bevan Lewis in his chapter on the pathological anatomy of Chronic Alcoholism, shows with great clearness the points of resemblance and difference between the two conditions, and to what pathological changes the similarity in the symptoms are due. On page 540, he

states—"In the periarteritis, occasionally engendered in chronic alcoholics of a certain age, we probably see the pathological boundary line over-stepped betwixt simple alcoholic insanity and general paralysis of the insane, and we have resulting therefrom, in a more acute spread of the cortical lesions, what might be regarded as general paralysis accidentally evolved out of Chronic alcoholism, or, as some would less correctly state the case, general paralysis caused by alcohol. Alcohol has its own rôle to play, and a most extensive one it is: but the tissue changes engendered thereby, are always as highly characteristic as are the morbid sequences of general paralysis, and we must seek to dis sever from the latter disease our notions of alcohol playing the part of a direct etiological factor, in the sense of originating the primal tissue changes by which this disease is characterised".

On page 538, he points out that in chronic alcoholism, the morbid change is centred in the atheromatous state of the inner coat of the arteries, and that the outer coat does not show the enormous nuclear proliferation so characteristic of general paralysis: and that it is to this limitation for a

time to the inner coat, that the slow, but gradual impairment of the nutrition of the nerve centres depends; which results in the mental enfeeblement of chronic alcoholism. And that on the other hand the more acute changes in the nerve cells of the cortex in the general paralytic are due to the early implication and rapid spread of morbid activity along the adventitial tunic of the vessels: and that as soon as the external medullated fibres of the cortex become affected with sclerosis, grandiose delusions simulating those of general paralysis are produced; but should the motor cell, and axis cylinder become involved, the characteristic delusions of suspicion preponderate, to the exclusion often of "such optimistic states." He concludes by saying .

"Whilst therefore, the cortical lesions of general paralysis indicate an invasion from without inwards, affecting the sensory elements and apical poles of the motor cells: alcoholism induces, in addition thereto, extensive vascular changes from within outwards, implicating the medulla of the gyri, and effecting a destructive degeneration of the medullated fibres."

Clinically the main points to be relied on for



a differential diagnosis are:-the history of the case, its very slow development, years of steady continuous drinking are necessary ; occasional heavy bouts do not produce this form: also as a rule the marked preponderance, early development, and exaggerated type of the physical symptoms: the aspect of the patient is different, there is always an air of suspicion, and mistrust about him; there may be a considerable degree of general optimism present, but grandiose delusion is usually late in making its appearance; and when present has always a marked substratum of morbid suspicion. One of the most constant phenomena, is loss of memory for recent events, in no form of insanity, in an early stage, is this symptom so well-marked; and even should most of the other symptoms disappear, this usually persists. Even in the very earliest stages the motor symptoms are more of the nature of a true paralysis, rather than a loss of co-ordination, and as the disease progresses this becomes more and more evident: this loss of power shows itself by muscular tremors in the fingers and hands, spreading to the arms, then to the lips and tongue, affecting



articulation, and last of all implicating the legs.

When these become involved there is a true sclerosis of the posterior columns produced, and the condition of the reflexes etc, depends on the amount of implication. A point of importance is that these tremors are most marked in the morning. When at rest the features are singularly mask-like, but when articulation is attempted, the whole muscles of the face twitch convulsively. The tongue is very tremulous, but does not show the fine fibrillar twitching seen in general paralysis; and taken over all, the tremors are of a much coarser nature, instead of each fibre being affected, the whole muscle seems thrown into convulsion. The pupils may be dilated, but are seldom unequal, and in a large proportion of cases the fundus is congested. Epileptiform attacks followed by transient aphasia are frequent. Should the gait be affected, it partakes more of the tabic nature. Under treatment this condition is often greatly ameliorated, but complete recovery seldom occurs, a greater or less degree of dementia usually persisting.

CASE VIII. OF CHRONIC ALCOHOLISM SIMULATING GENERAL  
PARALYSIS.

G. R. admitted June 76. age 41, married, landed proprietor.

History. For years has been a steady, hard drinker, as a rule consuming more than a bottle of whisky a day. For a year before admission a gradual loss of memory for recent events was noticed, and he had three epileptic fits. Also about this time he began to be very sleepless, and a distinct change in his disposition became apparent: he boasted of his wealth, possessions and prowess in a manner quite unusual to him; and ultimately he began to make most extravagant purchases. During this time he drank more heavily than ever, averaging, it is said, two bottles of whisky per diem. His mental condition gradually became worse; from simple boasting he went on to the most absurd exaggerations of his wealth and position; gave detailed accounts of duels he had fought, wounds he had received, men he had killed etc., and his loss of memory became almost complete.

Physical Condition on Admission. Muscles of the face

are flabby and immobile, and when articulation is attempted they twitch convulsively - the tongue is very tremulous and quivers when extended: superficial and deep reflexes are exaggerated, and the electro-contractility of the muscles is increased. Basis of support is broadened; he cannot walk along a straight line without swaying from side to side, and going up and downstairs is attended with great deliberation. He speaks in a studied manner; hesitates before pronouncing long words, as if he were slightly intoxicated. The hand-writing is very shaky owing to the great tremulousness of the hands. Pupils are equal and react readily to light and distance.

Mental Condition on Admission. When addressed patient looks up with a wild suspicious look, which quickly changes into a pleasant smile: he answers questions readily and volubly; talking in an excited manner about himself; boasting of his skill at sports, his wealth, position, and general cleverness. Expresses himself as well-pleased with his surroundings, and says he was never better or happier in his life, though he states his confinement here is

due to a conspiracy on the part of his wife. Tells some absurd story about being recently wounded in a duel, the ball passing through his lungs, though he cannot show any mark; this he says is due to his flesh healing instantaneously. His memory for recent events is completely gone, he cannot recollect passing events for more than a few minutes. During the next few months was at times excited, and frequently threatened to prosecute Dr. Tuke for conspiring with his friends to detain him in the asylum. The motor signs persisted, as well as the exaggerated ideas of his wealth and prowess, but the memory showed slight improvement. By 1877, though still subject to occasional outbursts of excitement, during which his morbid suspicions always became more prominent, he had to great extent settled down into a quiet self-complacent condition; always bragging about his money and skill at sports; the motor symptoms remaining unchanged. During 1878, his bodily condition greatly improved, and though showing no mental change, he entirely lost the previously mentioned physical signs. The following



year, the mental condition also commenced to show marked improvement; his grandiose ideas gradually faded away , ultimately completely disappearing; and, except when excited by the sight of his friends, which always seemed to arouse his delusions of persecution; he evinced only a mild dementia, and in this condition he has remained up till the present date. His dementia is shown by a general simplicity; a complete disregard for his wife and family, and a loss of memory for recent events, e.g. shortly after playing a game of whist, which he does purely mechanically, he cannot tell whether he has lost or won; though his memory for past events is remarkably good. He still retains some of his old delusions of suspicion, but even these are considerably modified. In this case sclerosis of the spinal cord was not produced, and in the brain the pathological changes were limited to the arteries and membranes: it brings out however, many of the points of resemblance and difference between the two conditions, already alluded to.

The next case I report for the sake of comparison with the preceding, not that it could readily be mistaken for a case of general paralysis, but

because it illustrates many of the mental and physical symptoms of Chronic Alcoholic Insanity.

CASE IX. A.M. admitted April 18.88 age 38, single, bank-clerk.

History. From youth, patient has been exceedingly intemperate, but was able to keep his situation in the Bank till six years ago: he then went abroad, where it is believed he drank harder than ever, but little is known of his life there. Three years ago he returned to this country, but did nothing and continued his drinking habits. Two months ago went to the Isle of Man, where he is known to have drunk to great excess, and to have had some sort of a fit. On being brought to Edinburgh, he was found to show marked mental aberration; though his friends state that previous to his visit to the Isle of Man he was mentally quite sound. This, however is very doubtful, more especially as patient lived a great deal by himself, and did not mix much with his relatives or friends.

Physical State on Admission. Pupils equal, sluggish, tongue tremulous; the upper lip droops, and the whole face is heavy, stolid and expressionless, but the muscles show no tendency to quiver, nor is

the speech affected. The hand-writing is laboured and shaky, owing to the tremor of the fingers.

There is marked difficulty in walking, but this is complicated by talipes equinus: the knee reflexes are entirely lost; muscular sense is very defective, and sensibility to pain, touch, heat and cold, are greatly diminished. Patient complains of constant numbness and tingling in his legs, as if his feet were asleep, but has no actual pain in any part of his body.

Mental State on Admission. He exhibits the most complete loss of memory for recent events, e.g. cannot tell the day of the week, nor the month of the year. Says "he has been here for a month, that "he was working up till yesterday, and is going back "to his work to-morrow." Memory for events of 15 or 20 years ago, though blurred is fairly accurate; he recalls incidents that took place then, speaking of them as happening yesterday, and talks of friends long since dead as living and constantly visiting him. Repeats the same sentences over and over again, and five minutes after the conversation is finished, has not the slightest recollection of it. Tells

confused stories of his having killed a man and being wounded himself, giving different versions every time.

After a few months, he began to pick up physically, but the mental condition remained the same.

He brought vague accusations against the other patients and attendants, accusing them of knocking him down and dancing on his legs. It is probable that the numbness and tingling in his legs gave rise to this idea. Otherwise he was always perfectly happy and contented, but the memory continued most defective; if he saw his mother in the morning, had forgotten all about her visit by the evening. After a years' stay he was discharged relieved; his physical health was much improved, but the feeling of numbness and tingling in the legs persisted as well as the entire loss of the knee reflexes. Mentally he improved up to a certain point; he lost all the ideas of his being injured, no longer told rambling stories of duels etc., and gave up talking about past events. But the loss of memory was absolute; the day he left, said he had been here for a month, and made other corresponding statements.



In this case distinct alcoholic paraplegia was produced, it was as well-marked the day he left as when admitted, and will in all probability persist; nor do I think any further mental improvement will take place.

#### SYPHILITIC SIMULATED GENERAL PARALYSIS.

There is no more disputed point in connection with general paralysis, than the rôle syphilis plays in its production, some authors (Kjelberg) taking the extreme view of stating that it is the sole cause. Heubner, and others describe a syphilitic general paralysis, simulating, but distinct from, true general paralysis. Some again, regard it as a pre-disposing cause (Savage), and others, such as Clouston, trace no connection between the two.

That the two diseases can, and do co-exist, quite independently of one another, there can be little doubt; and that there is no necessary connection between them, is proved by the fact of Dr. Lewin reporting 20,000 cases of syphilis, one per cent insane, but not one case of general paralysis.

Syphilis, however, produces a condition, which in its clinical features very closely simulates

general paralysis; numerous such cases are on record; but that it is ever an exciting cause of true general paralysis, I have seen no sufficient evidence. Occasionally it may be a remote cause by inducing a general nervous degradation, which predisposes its victim to the development of general paralysis by weakening the tone of the vessels, and rendering them more liable to inflammatory affections.

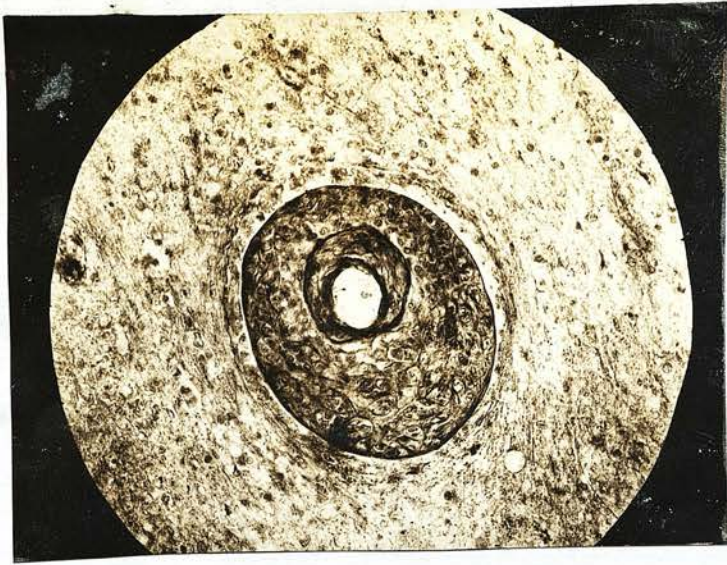
General paralysis is not in any sense a degenerative sequela of syphilis, the condition being essentially an inflammatory one. Nor must the mental worry and anxiety frequently consequent on syphilis, be left out of account when estimating its place as a factor in the production of general paralysis. Because a patient in youth contracts syphilis, and in his prime develops general paralysis, I cannot see that it is necessarily to be regarded as a predisposing cause. Such cases on post-mortem examination show frequently no trace of specific disease, while the pathological appearances of general paralysis are well-marked.

Syphilis exerts its specific action on all parts of the brain and its envelopes; and mental symptoms may result from the implication of any of

these structures. The dura mater from its close connection with the cranial bones, is by extension, often affected with chronic inflammation or gummatous growths, which may extend to the pia and brain itself. The pia mater may be the seat of gummatous growths or of chronic inflammation leading to adhesions to the surface of the brain; acute inflammation is not seen unless in connection with morbid growths. It is a disputed point whether gummata ever originate in the brain itself. Wilks, Heubner and Gowers give a decided negative. The latter states that they are usually superficial and attached to the pia mater, and should they occur deeper, a connection can still be traced to a fold of pia mater between the convolutions.

The arteries are very frequently affected, and in connection with general paralysis, it is of importance to note, that as Heubner points out, it is the internal coat which is first implicated; and that the change is due to the direct irritating action of the syphilitic blood. According to him, a new growth is developed between the endothelium and the fenestrated layer; the first change being a





These were taken from a well marked case of  
 Syphilitic Insanity, and show in a marked  
 degree the arteritis produced by this disease.



multiplication of the nuclei of the endothelial cells, by which the endothelium is pushed inwards and diminishes the lumen of the vessel, around these multiplied nuclei, <sup>ORGANISED MATERIAL</sup> ~~amorphous~~ forms, consisting of generated cells, spindle shaped or stellate, which still further diminishes the lumen of the vessel, sometimes causing complete occlusion: and that when the adventitia becomes affected it only shows the evidences of a simple chronic inflammation.

The changes in the brain itself are all secondary to the vascular changes, and are usually of the nature of inflammatory softening, due to arterial occlusion; occasionally sclerosis is produced.

Cerebral syphilis, speaking generally, manifests itself in three main forms.

1st. Subacute or Chronic inflammation of the  
membranes.

2nd. Gummatous growths.

3rd. Arteritis.

Any two, or all of these conditions may co-exist, and while possessing many symptoms in common, have nevertheless certain distinctive features. The meningitis is mainly characterised by headache,

showing nocturnal exacerbations; sleeplessness; convulsions; peripheral pains; local paralyses; alterations in speech; muscular tremors, and a tendency to coma. Optic neuritis is not found unless in old-standing cases. It is of importance to note that the headache in early cases is not due to implication of the membranes only, but also to changes in the diploe of the skull: in which cases the cancellae are found full of bodies closely resembling, if not identical with, connective tissue corpuscles; taking the place of the fat cells. The specimen sent, was taken from a very early case, which was trephined, and sections made from the portion of skull removed.

The mental symptoms are, loss of memory, irritability, change of disposition; occasionally excitement and optimistic delusions, but more usually delusions of suspicion or gradually increasing dementia.

The symptoms of gummata are mainly those of a tumour, and vary with their position; persistent headache and optic neuritis being the most constant. Epileptic attacks are frequent, differing, as

described by Dr. Gowers, from ordinary epilepsy in the following particulars.

1st. Age of the patient, usually commencing  
after 25.

2nd . The persistent headache.

3rd. The frequent association of optic neuritis.

4th. The co-incidence of paralytic symptoms.

5th. The association of early, and often pro-  
gressive mental symptoms.

The mental symptoms vary, but are mainly characterised by hebetude, irritability, loss of memory, and gradually progressing dementia.

The characteristic symptom of arteritis is sudden aphasia, or hemiplegia, the result of arterial occlusion, and local paralysis following implication of individual arteries. If the vessel be small, the hemiplegia may be transient, but more often it is permanent. Optic neuritis is not seen unless chronic meningitis or tumour co-exist. Mental symptoms do not appear unless the arteritis be very extensive, or the arterioles affected, when they frequently strongly simulate general paralysis.

Leaving out of account the purely anaemic

insanity, it occasionally produces, and the still rarer cases of acute mania, which sometimes occur during the prevalence of secondary symptoms; syphilitic insanity in all its forms has a strong superficial resemblance to general paralysis. In both, a well-marked train of mental and bodily symptoms are produced, having as their common goal dementia and paralysis. But there is this great outstanding characteristic, that the one is capable of cure, the other practically hopeless. I do not say that every case of syphilitic insanity is recovered from, but a large proportion get well, or very materially improve under appropriate treatment.

The following points are briefly, what, in my own experience, have proved most useful in making a differential diagnosis.

1st. And most important, are any of the usual manifestations of syphilis; especially great and persistent headache in the vertex and frontal region, showing nightly exacerbations; local paralyses; optic neuritis; temporary aphasia or apoplectiform attacks.

2ndly. The age of the patient. Brain syphilis



is common between 20 and 30; General Paralysis between 35 and 45.

3rd. That, as in chronic alcoholism, the somatic preponderate over the mental symptoms, and all through the disease, the motor affections are mainly of a paralytic, rather than a paretic nature. Brain Syphilis most commonly simulates the demented or the melancholic types of general paralysis, and most reliance must be placed on the motor symptoms above mentioned: but in the early stages the irritability and sleeplessness is greater, and the mind and memory seem more obscured than obliterated. The whole course of the disease is much more prolonged; progresses by fits and starts, and does not show such a steady downhill tendency. If the exalted type be simulated, as it not infrequently is; the delusions are much modified with regard to their expansiveness, and are always tinged with marked hypochondriasis or suspicion.

No one form of brain syphilis is constantly associated with any distinct type of general paralysis, and unless the physical signs are well-marked, the mental symptoms give little indication of the

seat of the lesion.

CASE X. Of Syphilitic Insanity Simulating exalted  
type of General Paralysis.

For the use of the following case, I am indebted to Dr. Byrom Bramwell.

Mr. A. age 32, Engineers' draftsman.

History. In the beginning of 1882, he came to Dr. Tennent of Glasgow, complaining that his memory was becoming affected and that he had difficulty in doing his work. On examination, some hesitation in speaking was noticed; the pupils were equal; patellar tendon reflexes were diminished, but equilibration was satisfactory. He was in an extremely nervous condition. A holiday with complete rest from work was recommended. On his return, the general health was improved, but his symptoms were exaggerated. The pupils were unequal, the left being the larger, and the tendon reflexes showed still further diminution; the erect posture was maintained with the eyes shut, but he experienced difficulty in going up stairs, or in walking on rough ground. He now also showed alternating attacks

of excitement and depression, and seemed to have hallucinations of hearing. Talked in a jaunty, excited manner of his holiday, and had to a great extent lost his previous nervous fear of his illness. There is a distinct syphilitic history.

On May 1st 82, his condition as described by Dr. Bramwell, was as follows.

Patient is stout and well-nourished; his expression is blank and stupid-looking; the right pupil is smaller than the left, but both contract readily to light and distance. Speech is indistinct, thick and blurred: spasmodic twitching is noticed in the facial muscles, becoming more marked when articulation is attempted, and the tongue shows marked tremors.

His friends state that in February he had a sudden attack of loss of power and speech lasting for a few hours. Mentally he exhibited alternating excitement and depression, and when excited showed marked grandiose delusion e.g. stated he was going to make a large fortune out of the sale of a hair pomade he had invented; but he also evinced numerous

delusions of suspicion: thought that men were constantly watching him and acting on him with galvanic batteries. Was restless and sleepless. Vigorous antisyphilitic treatment was adopted.

On the 15th of June had an attack of aphasia, with left sided hemiplegia, lasting for a few days. On the 14th of July had another attack of aphasia, this time with right-sided hemiplegia; in three days the paralysis of the leg and arm passed off, but the aphasia persisted a day or two longer. On the 19th of July there was again a slight attack of temporary aphasia, but no hemiplegia. By this time the delusions had disappeared but he was extremely dull and apathetic. On the evening of August 1st, he was seized with a rigor; next morning was found to be speechless and paralysed on the right side of the body; at this time he seemed conscious but soon became comatose and remained so for 36 hours. During this attack a large bed sore formed over the sacrum. Some days after he recovered consciousness, a deep seated abscess burst while he was straining at stool, and a large quantity of pus and blood escaped. After this his mental condition improved



in a most remarkable manner, and he began to pick up physically.

In October he returned to Glasgow. The anti-syphilitic treatment was continued, and the head repeatedly blistered. On the 8th of March 83, he was able to resume his work, and in the end of the year he married.

In 1885, his condition was as follows. Speech still a little thick, but quite intelligible. Is constantly at his work, and is painstaking and accurate in all he does. Memory is good: the left pupil is larger than the right, but both react to light and distance, and the fundus of the eye is normal. What he complains of chiefly are what he calls "fainting fits". During these attacks, he suddenly becomes pale, and the eyes have a staring expression; there are no convulsive movements, only occasionally slight facial twitchings: if at work, does not drop his pencil, or anything else he might happen to have in his hand: his wife states that he loses consciousness, but this he denies, and as the fits only last a minute or two, it is difficult to decide. There is no loss of memory after the attack, and he is able to resume his work as soon

as the fit has passed off. He may have several of these during the 24 hours, and they frequently occur during the night, when they tend to be more severe. In Oct. 1887, with exception of occasional attacks of petit mal, which are decreasing in frequency, he is reported to be continuing perfectly well. His memory is excellent and power of drawing unimpaired. There are no tremors or twitchings of lips or tongue, and the pupils are quite equal. The only symptoms that persist are a slight thickness of speech, and absence of tendon reflexes. In 1889, he is still described as remaining well.

Here the arteries were mainly affected, - the repeated temporary aphasic, and hemiplegic attacks were very characteristic; apart from these, however, the age of the patient, 32; the distinct syphilitic history, and above all the effect of treatment, showed that it was a purely syphilitic case.

CASE XI. Case of Syphilitic Insanity simulating  
Melancholic Type of General Paralysis.

J.H. admitted Dec.24.86. Age 50, single,

commercial traveller.

History. Eighteen years ago had an attack of syphilis, followed by well-marked secondary symptoms.

Is stated to have been a strong, healthy man up till six months ago, when he suddenly fell down in a "fit" on the North Bridge, he was taken to the Infirmary, but soon recovered and returned home.

For a few months previous to this "fit", he is said to have shown symptoms of apathy, unusual irritability, a slight loss of memory for recent events, and also to have complained of dizziness and pain in his head. After the "fit" all these symptoms greatly increased: his memory, originally remarkably acute, became distinctly impaired. This was noticed not only by his friends, but by himself: severe frontal headache, was constantly complained of, and the right pupil was noticed to be dilated. During the next three months he had three severe "nervous fits", during which he suffered great mental agony, and expressed a feeling of impending death: at all times he was extremely despondent about himself. He was treated with mercury and Iodide of potass. This condition persisted with little variation till 10 days before admission, when he became excited, and expressed the

delusion that he had committed a great crime for which his family must suffer the consequences, and was very sleepless and noisy at nights. The continuance of this excitement, and his refusing to take proper nourishment, led to his being placed in the Asylum.

Bodily condition on admission. Tongue coated with fur; lips dry and cracked; skin moist, covered with greasy, bad-smelling perspiration: there is a scar on right groin, and a mark of a healed ulcer on right tibia: feet and ankles much swollen: urine normal.

Nervous system. Pupils unequal, right much dilated; left shows evidence of old standing iritis: fundus normal: tendon reflexes are exaggerated, the right more so than the left: skin reflexes, and sensations to touch, pain etc, are considerably diminished: the gait is very unsteady and tottering, and he cannot stand without support. There is marked hebetude of expression, upper lip droops, and is very tremulous: the tongue is protruded in a hesitating manner, and shows coarse fibrillar twitchings. The speech is slurred, thick and unnatural.



Mental Condition on Admission Dec.24th. Is very

noisy, shouting at the pitch of his voice, clutching hold of anything near him and refusing to let go; he cannot be got to answer any questions, nor perform the simplest actions when requested: during the night was very noisy and required to be fed in the morning. Ordered bromide and Iodide of Potass.

Dec.25th. Quieter and inclined to be drowsy. Bromide stopped, liq.hydrarg. given with the iodide.

Dec.28th. Very restless, will not stay in bed, constantly mutters to himself, and seems to have the delusion that he has given syphilis to everybody around him, but is more docile, putting out his tongue etc, when requested.

Jan.2.87. Is very drowsy, will sleep the whole day and is with difficulty roused. Takes food well.

Jan 7th. During the day very drowsy, but at night sleepless and restless, constantly muttering to himself.

Jan.13th. The facial and lingual tremors have much increased; gait more straddling and tottering. Is filled with vague fears, and persistently expresses

the delusion that he transmits syphilis to any one who comes near him. Is becoming dirty in his habits.

Jan. 25th. Is becoming more feeble, almost unable to move from his chair. Usually heavy and lethargic during the day, but noisy and restless during the night. Requires his urine to be drawn off: feet and ankles much swollen. Takes food fairly well.

Feb. 4th. Had a severe epileptic fit at 11 a.m. this morning, and at 11.30 had a second, during which, as in the 1st, there was foaming at the mouth, and the head was turned to the left. The convulsions were limited to the left arm, and left side of face: right pupil dilated. At 11.40 had another fit, this time affecting the right arm and then the left. At 12. a.m. the breathing was Cheyne-Stokes in character. 12.30, breathing was calm, 20 per minute, at 2.15 p.m. had a very severe fit, preceded by squinting upwards and to the left, the head was also turned to the left; both arms showed tonic, then clonic spasms, lasting for 15 minutes, legs were unaffected and there was no foaming at the mouth. There was no stupor after the fit, but the head showed a tendency to roll to the left side, and

the fingers of the left hand continued to twitch slightly. This condition gradually passed off, and there was no recurrence of the fits.

Feb.6th. Free from fits since last report. Mind seems clearer, was able to be up to-day. Is taking food better slept well last night.

Feb.12th. Is gradually failing, is again noisy, restless, and full of his old delusions.

Feb.20th. Since last report has rapidly got worse. This morning there was marked squinting of the eyes, but no convulsions. Mentally is perfectly torpid. He died the next morning at 5.a.m. Just before death his mind seemed to revive and for the first time for weeks, he fully recognised his relatives and was able to bid them farewell. Unfortunately no post-mortem examination was allowed, but his symptoms all pointed to an extensive gummatous infiltration of the membranes.

I need only refer to the other conditions which occasionally produce symptoms simulating general paralysis; they are of the most multifarious description, ranging from fevers, (Dr.Mc.Dowal in

speaking at a Medico-Psychological meeting mentioned the case of a friend of his, who, during an attack of typhoid fever, was mentally and physically a typical general paralytic, down to almost any diseases of the nervous system, which are occasionally complicated with mental phenomena, such as epilepsy, cerebro-spinal sclerosis, paralysis agitans, cerebellar or other tumours. To give points for their differential diagnosis is perfectly unnecessary; the condition speaks for itself; usually a few of the physical signs are marked in one series of cases, and the mental symptoms in another; it is very rare to find them both combined in any one instance, and even should they be, a careful inquiry into the history of the illness soon dispels any doubt as to the nature of the case.

In some cases of acute mania, however, a diagnosis must be deferred for some time, as maniacal attacks are very frequently an early complication of true general paralysis.

It practically comes to this, that whenever acute arterial congestion, with probably implication of the hyaline sheath, is produced; or when, in old



standing cases, adhesion of the membranes or sclerosis of the brain is developed; a train of symptoms simulating those of general paralysis could be produced.

Opinion is divided as to the initial seat of the lesion in general paralysis, and two main theories have been advanced as to the essential nature of the disease. Bayle, Calmeil, Guislain, Hitzig, Krafft Ebing, Bevan Lewis and others hold it to be primarily an inflammation. Marcé, Bucknill, Salmon, *Cloouston*, Savage etc., hold that it is primarily a degeneration, and inflammation, if present, to be only secondary. As regards the initial seat, the spinal cord membranes or brain itself, have by different observers been regarded as the foci of the disease.

All modern research, however, tends to show that the degeneration theory is untenable, and proves almost conclusively, that it is essentially a true inflammation, the starting point of which is the hyaline sheath of the vessels, and the visceral pia. (In speaking of the visceral pia, I mean that ~~part~~ <sup>inner</sup> LAYER of the pia mater which invests the convolutions

dipping into the sulci; as opposed to the arachno-pia, or upper layer of the pia mater, (so long erroneously described as a separate membrane - the arachnoid) (B. Tuke, Axel-Key and Retzius).

Bevan Lewis, in his book on insanity, describes three stages in the disease.

1st. An inflammatory change in the tunica adventitia, with excessive nuclear proliferation.

2nd. A stage of extraordinary development of the lymph connective system of the brain, with a parallel degeneration and disappearance of nerve elements, in form of denudation of axis cylinders, and destruction of all processes by their being merged in the felting mass of processes thrown out by the Deiter's cells, producing a true sclerosis.

3rd. A stage of general fibrillation with shrinking, and extreme atrophy of the parts involved.

The initial change is a congestion of the cortical vessels, followed by a marked increase of the nuclei of the tunica adventitia, the result of a true inflammatory condition. The usual result of inflammation follows, namely an exudation of fluid into the perivascular lymph spaces. The presence of this inflammatory exudate exerts a harmful

influence both on the vessels, and on the nerve cell itself. Oberst<sup>EINER</sup>~~er~~ asserts, and his observations have been verified by others, that each nerve cell is surrounded by a capsule derived from the hyaline sheath. In fact each cell has its own lymph space. The fluid, which under pathological conditions becomes acid (lactic acid), paralyses the muscular coat of the vessels, causing stasis of the blood current, giving rise to aneurismal dilatations, or even to rupture. Such haemorrhages when large, ~~produce~~<sup>PRODUCE</sup> the so-called arachnoid cysts; which have frequently been erroneously described, as of an inflammatory origin.

When this exudation is large in amount it finds its way into the cavity of the pia, producing changes in its structure.

Instead of being compensatory, as this fluid is commonly stated to be, it is a true inflammatory exudate, exactly comparable to the exudation which takes place in pleurisy, ~~or~~ pericarditis, <sup>or basilar meningitis</sup>. It may give rise to pressure, either by its large amount, or by its being confined in a circumscribed area of the pia by adhesion of its two layers. It may also flood

the subdural space, finding its way there through the Pacchionian villi. However it accumulates, it produces general atrophy of the convolutions over which it exists.

That this fluid exudate is present in considerable quantities in a very early stage of the disease is proved by the two trephining operations performed on general paralytics recorded by Dr. Clay Shaw in the B.M.J. Nov. 16. 90, and Dr. Take in the B.M.J. Jan. 4. 90. In the first of these cases two trephine holes were made over the central sulcus, the intermediate portion of the skull was removed; the dura mater which showed distinct bulging was incised and a considerable quantity of fluid escaped. In the 2nd the trephine was applied a little above and in front of the left parietal eminence, no bulging of the dura followed the removal of the disc of bone. A similar opening was made on the right side; the disc of bone removed was  $1/16$  of an inch thicker than the other, distinct bulging of the dura followed, but it was not incised. Temporary improvement resulted in both cases. The fact of the bulging of the dura mater in these two cases satisfactorily

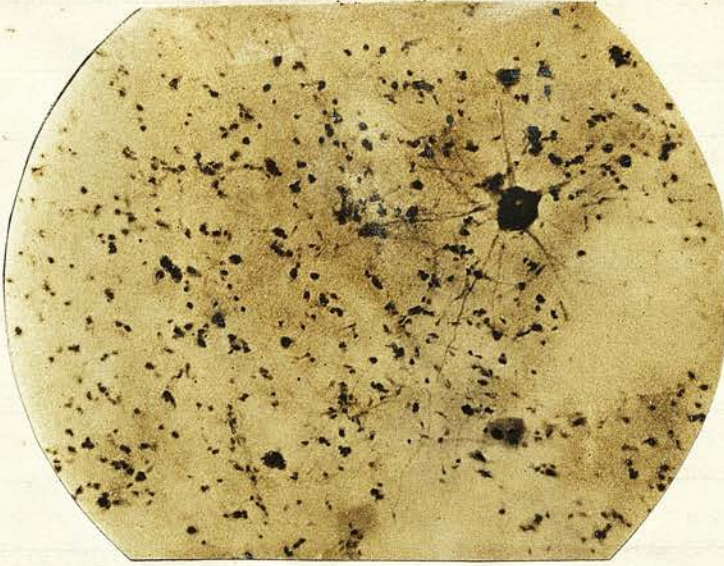


proves that the fluid is not compensatory, but an exudate poured out in such quantities as to produce pressure and consequent atrophy of the subjacent convolutions.

In the last stages it might be considered compensatory, when a shrinking of the whole organ has resulted from general or local malnutrition; but even then, should active inflammation exist actual exudation may be going on. There can be little doubt that atrophy of the brain is the secondary result, not the primary condition.

In the 2nd stage the inflammatory exudation affects the nutrition of the nerve cell, giving rise to a fuscous degeneration of their contents and to their ultimate complete destruction; but the perivascular lymph spaces are occluded by the products of inflammation and are unable to get rid of this debris, and at this stage according to Bevan Lewis, the supplementary lymph connective element comes into play. In health these constitute the glia cells, or flask shaped elements of the neuroglia, they possess a comparatively large nucleus at their upper extremity which stains faintly with

x 140



x 320



Beiter's or "scavenger cells". Showing radiating fibres,  
and staining of protoplasm.

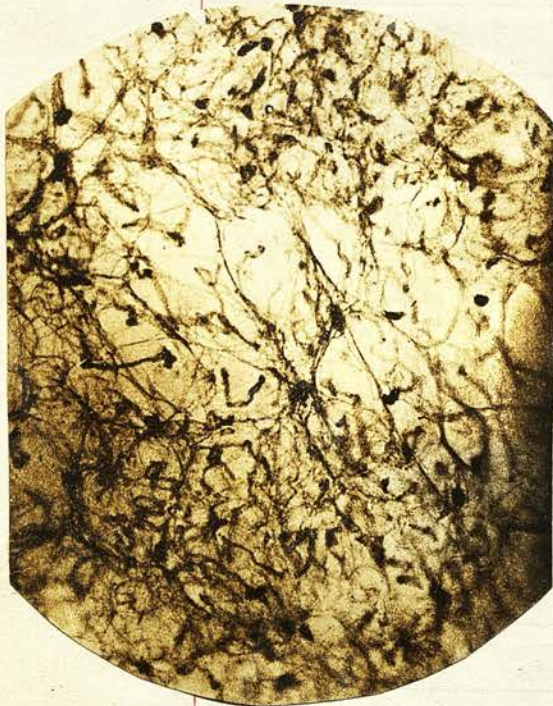
aniline black, the protoplasm of the cell remaining unstained: each has a connection by a delicate process with a neighbouring blood vessel, difficult to detect since they are unaffected by reagents. In the normal state, by means of this process it is capable of removing the ordinary effete material of the brain; but in disease, when extra work is thrown on them a functional hypertrophy takes place, and they become as Lewis well describes them, "Phagocytes" or "scavengers of the tissue". They are metamorphosed into large amoeboid masses of protoplasm, often showing subdivision of their nucleus, and the protoplasm now stains deeply. From these cells radiate on all sides numerous branching fibrils forming a complete network, all which branches also stain deeply. This network destroys the axis cylinder and lateral processes of the cells, giving rise to a true sclerosis.

The last stage is one of shrinking of this neuroglia network, with consequent injury to vessels and implication of nutrition, followed in some cases by ramollissement or else by congestive



X560

I

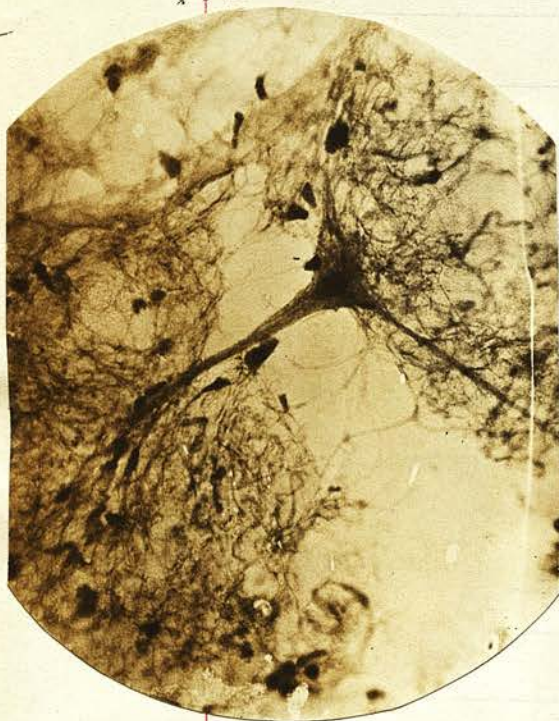


X300



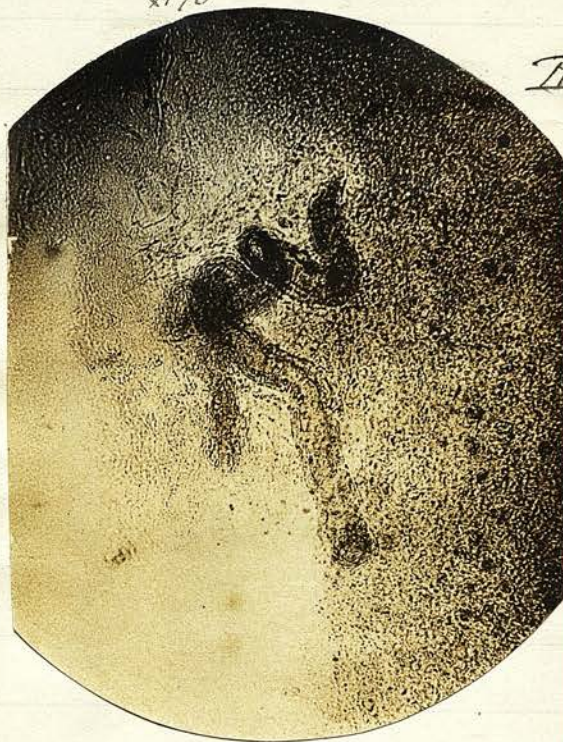
X520

II



X170

III





attacks, the origin of which is as yet a matter of conjecture.

I have mentioned these few points to indicate the essential difference in the pathology of Idiopathic and Pseudo General Paralysis: in the 1st, we have a distinct inflammatory insanity commencing in the tunica adventitia of the vessels; in the other, we have a purely toxic insanity, the starting point of which is in the tunica intima.

*I. Shows the fibrillation produced by the processes from the scavenger cells.*

*II. Shows the nerve cell being invaded and destroyed by the felling of the processes.*

*III. Vessel of the pia, showing the tortuous condition, frequently observed in general paralysis. These specimens were taken from J.M. (Case 1.).*